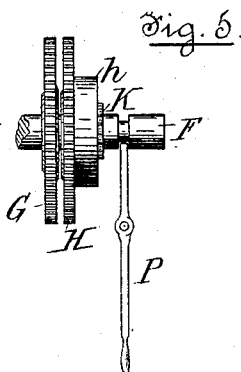
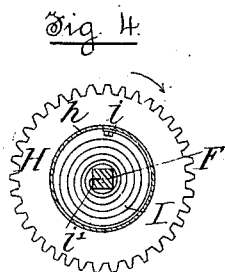
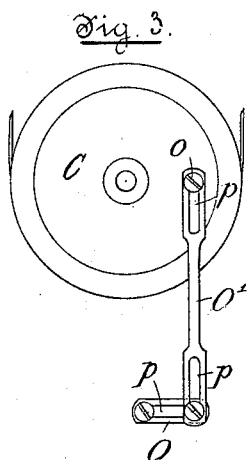
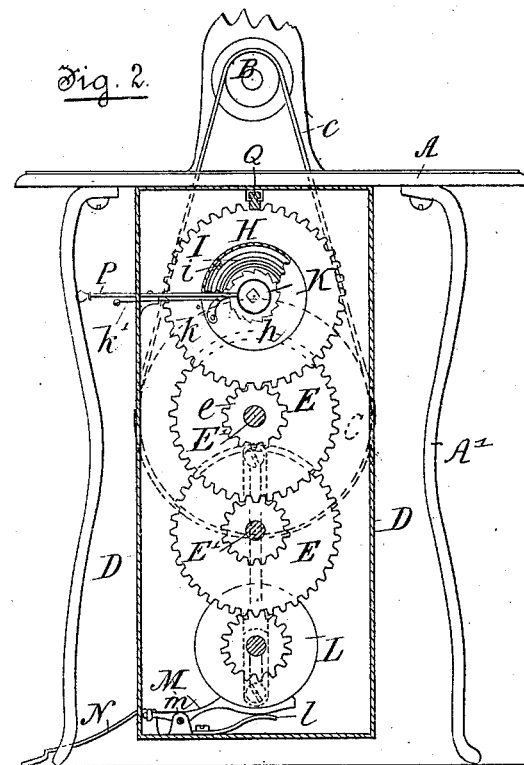


Patented Sept. 19, 1882.



Witnesses:
H. Morey
A. Rennie

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Anatole Supin Rouff.
Per.
R. A. Kellous.
Artif.

UNITED STATES PATENT OFFICE.

ANATOLE EXUPÈRE ROUIF, OF MONTREAL, QUEBEC, CANADA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 264,767, dated September 19, 1882.

Application filed April 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, ANATOLE EXUPÈRE ROUIF, of the city of Montreal, in the district of Montreal, and Province of Quebec, in the Dominion of Canada, have invented certain new and useful Improvements in Motors; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention has reference to improvements in that class of motors in which a coiled spring is used as the initiatory power, and is particularly applicable to sewing-machines and other light machinery of a similar class. It may be briefly described as consisting of a coiled spring arranged in connection with a train of gears and a crank to give rotary motion to a driving-wheel, &c., in either direction, and so adapted as to allow the operator to reverse the direction of revolution at will while using the same coiled spring. Certain devices for reversing, breaking, and stopping the mechanism are also included in my invention. To thoroughly comprehend the same reference must be had to the accompanying drawings, in which similar letters of reference indicate like parts, and where—

Figure 1 is a side elevation of part of a sewing-machine, showing my mechanism arranged to operate same, the case surrounding same being in section. Fig. 2 is a back elevation of same; Fig. 3, a detail showing adjustment for different sizes of machines; Fig. 4, a view of main driving-gear and operating-spring, and Fig. 5 a detail of device for reversing action of same.

A represents the table of the machine; B, its driving-wheel; C, the main driving-wheel actuating the wheel B through a strap, *c*, and journaled in the frame-work A', all constructed and arranged in any ordinary or approved manner. When my motor is attached to a sewing-machine the existing driving-wheels, &c., will be used.

Underneath the table A, I attach a box or casing, D, of suitable size, configuration, and strength to contain a train of gears, E E, the shafts E' E' F F' of which are journaled in said casing. Upon the upper one of these shafts, F, is mounted rigidly a gear-wheel, G, (shown in Fig. 1,) and on the same shaft, but loosely, the main driving-gear H is mounted.

Cast in one with this gear H is a cylindrical casing, *h*, inside which is coiled a strong spring, I, secured at its outer end, *i*, to the casing *h* and at its inner end, *i'*, to the shaft F. This coiled spring is wound up by a lever or key operating on the shaft F in any approved manner.

A ratchet, K, is firmly mounted on the shaft F, close to the casing *h*, and is provided with a pawl, *k*, pivoted to said casing. This is for the purpose of preventing the shaft F from turning backward as the spring is wound up, and the pawl *k* is drawn in and out of gear with the ratchet by means of a hand-lever, *k'*, projecting through the casing D, when it is desired to reverse the action of the motor, as will be hereinafter described.

On the shaft F', or that which carries the lowest gear-wheel, I mount a friction-wheel, L. This friction-wheel is preferably covered with rubber, and has pressed against it by a spring, *l*, a regulating-brake, M, pivoted to the casing D at *m*. By depressing a treadle, N, connected to the brake by a system of suitable levers, *n*, the brake M is thrown off from the friction-wheel L, or its pressure thereon lessened or regulated, at will.

One end of the shaft F' projects somewhat beyond the casing D, and is connected by links O O' to the main driving-wheel C at *o*, and in this manner gives rotary motion to the same, which in turn drives the machine. The links O O' are slotted, as shown at *p p*, so that one set may be adjusted to fit different sizes of machines.

Q is a sliding stop, which I throw between the teeth of the main driving-gear H when I wish to prevent the coiled spring I from operating or the gears from revolving. The regulating-brake M may be found sufficient for this purpose; but I prefer to use also the stop just described.

The mechanism thus far described, omitting the gear G, will operate the ordinary class of sewing-machine and other machines which do not require to have their action reversed, and by winding up the spring I on the shaft F, in a manner somewhat similar to a watch, at stated intervals, the motor will operate by the outer end, *i*, of the said spring pressing on the casing *h*, and thus rotating the driving-gear H and train of gears, the foot of the operator

being then placed on the treadle N and the regulating-brake released from strong contact with the friction-wheel L. When, however, it is desired to rotate the gears and driving-wheels in the opposite or reverse direction, I first release the pawl *k* from the ratchet K by pulling out the lever *k'*, and then shift the shaft F to the right or left, as the case may be, by means of the lever P, which is connected to the shaft F, as shown in Figs. 1 and 5. (The said shaft slides easily in its bearings in the casing D.) The gear H is thus thrown out of gear with the gear *e* on the shaft below, and the gear G comes into gear therewith, and the pawl *k* no longer offering resistance to the ratchet K, the shaft F, and with it the gear G, mounted firmly thereon, commences to revolve in the reverse direction and communicates motion in the same way to the train of gears, driving-wheels, &c. This is effected by the inner end, *i'*, of the spring I, working (in place of the outer end, *i*, as described in the first operation) against the shaft F, and thus rotating same, the pawl *k* of course being again thrown into the ratchet K to prevent the gear H and casing *h* from rotating except with the shaft, it being understood that in this case the outer end, *i*, of the coiled spring I will be held and prevented from working, so that the whole force of said spring may be used at the opposite end in rotating the shaft F.

The operation of my invention will be so clearly understood from the foregoing as to

require no explanation further than to say that to start the machine the stop Q is released from the gear H and the spring I wound up by turning the shaft F by a key, &c., after which the foot of the operator is placed on the treadle N, which releases the brake M from strong contact with the friction-wheel L, and the working then proceeds. To reverse, the operator takes his foot off the treadle and the brake holds the friction-wheel steady. The lever P is then drawn to one side, as explained, and the gear G thrown into gear with the gear *e*, and the pawl *k* again caused to intermesh with the ratchet K.

What I claim, and desire to secure by Letters Patent, is as follows:

The means herein described for reversing the action of a coiled motor-spring by causing either end of such spring to work while the other is held fast, consisting in a fixed gear-wheel mounted on a shaft, and a loose gear-wheel revolving on said shaft, the coiled spring being attached at its outer end to a projection or casing formed in one with such loose gear, and the inner end of said spring being secured to said shaft, which is moved in the direction of its axis to cause either gear at will to intermesh with the first of a train of gears, substantially as set forth.

ANATOLE EXUPÈRE ROUIF.

Witnesses:

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